

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Steve Ingistov
Serial No.: 09/288,943
Filed: 4/9/99
Group: 3747
Examiner: Kwon



For: "Turbine Power Plant Having Minimal-
Contact Brush Seal Augmented
Labyrinth Seal"

Box Board of Appeals
Assistant Commissioner for Patents
Washington, D.C. 20231

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2-27-01
(Date of Deposit)

F. Lindsey Scott
(Signature)

2-27-01
(Date of Signature)

TRANSMITTAL LETTER FOR APPLICANT'S BRIEF ON APPEAL

Enclosed herewith, in triplicate, is Applicant's Brief on Appeal in the subject application.
Enclosed herewith are triplicate copies of this Transmittal Letter.
Enclosed herewith is a check for the fee of \$310.00 required for filing this Brief on Appeal.

Please charge any additional fees or credit any overpayment to Deposit Account No. 50-0232.

Respectfully submitted,

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MAR 12 2001

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C:\docs\arco\25200\Transmittal Letter for Applicant's Brief On Appeal 02-26-01

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

#11
3.22.01

In re application of: Steve Ingistov

Serial No.: 09/288,943

Filed: 4/9/99

Group: 3745

Examiner: Kwon

For: "Turbine Power Plant Having Minimal-
Contact Brush Seal Augmented
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2-27-01
(Date of Deposit)J. Lindsay Scott
(Signature)2-27-01
(Date of Signature)

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MAR 12 2001

TECHNOLOGY CENTER R3700

BRIEF ON APPEAL

Pursant to a Notice of Appeal filed herewith, Applicant sets forth herein the authorities and arguments upon which applicant relies. Applicant encloses herewith triplicate copies of this Brief on Appeal.

By separate Transmittal Letter filed herewith Applicant has enclosed a check for \$310.00 in payment of the fee for filing this Brief in support of an appeal.

Please credit any overpayment or charge any additional fees due for this Brief on Appeal to Deposit Account 50-0232.

Real Party In Interest

Watson Cogeneration Company is the owner of the subject patent by an assignment of U.S. serial No. 08/656,654, the parent application of continuation application U.S. Serial No. 08/892,738 which is the parent application of this continuation application. The assignment is recorded at Reel 8093 Frame 0212.

Status of the Claims

This Application, as originally filed, contained claims 1 - 20 of which claims 1, 11, and 17 were independent as U.S. Serial No. 09/288,943 filed April 9, 1999. In a Preliminary Amendment, Claims 1 - 20 were cancelled and new Claims 21 - 31 were added. New Claims 21-31, as stated in the Preliminary Amendment, represented the non-allowed claims from U.S. Serial No. 08/892,738, (a continuation of U.S. Serial No. 08/656,564 filed May 31, 1996) which did not include features related to the admission of cooling air into the barrel of a turbine engine in addition to that passing the brush seal. The claims, which include this feature, have been allowed and issued in U.S. Patent 5,961,279 based upon U.S. Serial No. 08/892,738. The claims allowed were Claims 5-8, 13-16, 20, and 22-24 in U.S. Serial No. 08/892,738. This restatement of the claims was made to simplify claim numbering and present the claims in better order for consideration.

In this Preliminary Amendment, it was requested that the Examiner declare an Interference between the subject application and U.S. Patent 5,630,590 (the '590 Patent). These claims were substantially the same claims as were filed originally in U.S. Serial No. 08/892,738. New claims 32-40 were added, for the express purpose of provoking an Interference with the '590 Patent.

The present Application was filed April 9, 1999 as a continuation of U.S. Serial No. 08/892,738, which was a continuation of U.S. Serial No. 08/656,564.

A Status Inquiry was submitted October 12, 1999 to determine the status of the subject Application.

A Second Preliminary Amendment made after discussions with Examiner Kwon. Applicant's attorney understood that Examiner Kwon had objections to Applicant's Claims 21-31 on various formal grounds. In this discussion it was understood by Applicant's attorney that elimination of these claims could enable favorable consideration of the request for Interference. Accordingly, Applicant cancelled Claims 21-31 with the understanding that this would place the case in condition for Declaration of an Interference.

Subsequently, an Office Action dated July 18, 2000, was issued. In this Office Action, Applicant's Claims 32-40 were rejected on the basis that these claims were not filed within one year of the issue date of the '590 Patent. The Office Action stated that the proposed Interference

could not be granted unless the Applicant had claimed substantially the same subject matter within one year of the issue date of the '590 Patent.

In response, Applicant filed an extensive Amendment on August 17, 2000. In this Amendment, Applicant added a new Claim 41, which Applicant stated represented Claim 1 of the originally filed U.S. Serial No. 08/656,564, filed May 31, 1996. This claim was entered. The claims then pending were Applicant's Claims 32-41. Claims 32-41 represent the claims copied for purposes of provoking the interference. Claim 41 is the same as Claim 1 in U.S. Serial No. 08/656,564.

The amendment included various appendices, which demonstrated that Applicant has at no time abandoned the claims originally filed and that Applicant has sought to move these claims forward to an interference and ultimately to issue.

The claims as currently pending stand rejected on the basis that the claims 32 - 41 were first submitted on the filing date of the instant application, which is not within one year of the issue date of the '590 Patent and that Applicant has not claimed the same subject matter as the '590 Patent.

It is noted that the '590 Patent and U.S. Serial No. 08/656,564 were co-pending from May 31, 1996 until May 20, 1997 before the same examiner. The Claims in U.S. Serial No. 08/656,564 were continued after a Notice of Allowance in U.S. Serial No. 08/892,738 filed July 15, 1997, in slightly amended form.

It is respectfully pointed out that Claim 41 is the same claim appearing in U.S. Serial No. 08/656,564 filed May 31, 1996. This claim was indicated allowable in a first Office Action Allowance mailed April 15, 1997, on U.S. Serial No. 08/656,564 by Examiner Kwon. This Application was re-filed as U.S. Serial No. 08/892,738 and substantially the same claims were continued in that Application. Clearly claim 41 was pending within one year of the issue date of the '590 Patent since these claims were co-pending with the '590 Patent for almost one year. No explanation has been offered as to why the Patent Office did not declare an Interference during the period of co-pendency.

Status of Amendments

No amendment was filed in response to the Final Rejection. All other amendments have been entered.

Summary of the Invention

Applicant's claimed invention comprises the use of a brush seal in a power plant including a stationary gas turbine engine. A multi-stage axial compressor is included in the power plant to supply compressed air for combustion to generate hot gases to drive the turbine. The compressor includes a rotor, which has a cylindrical land region downstream of a last-stage of the compressor. The land region has an outside diameter D. A turbine is coupled via a shaft to the rotor of the compressor. A stationary inner barrel is positioned downstream of the compressor and around the turbine shaft so that a flow passageway is provided through the stationary inner barrel to an outlet from the inner barrel near the intake to the turbine.

In the past, a labyrinth, as shown for instance in U.S. Patent 5,961,279 in Figure 2, was used to control the flow of air into the inner barrel. According to Applicant's claimed invention, a brush seal is positioned on the inner barrel for restricting air passage into the chamber from the compressor. The brush seal comprises a ring shaped holder, a multiplicity of bristle members extending radially inward from the holder toward the outer diameter D of the rotor and a means for fastening the holder to the inner barrel member. The bristles are desirably of a size so that when the plant is inactive the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

Issues

The issues presented by this Appeal are whether Applicant is entitled to Declaration of an Interference proceeding with the '590 patent. The specific issue presented by the Examiner is whether Applicant had claims claiming substantially the same subject matter as the '590 patent pending before the Patent Office within one year of the issue date of the '590 patent.

Grouping of the Claims

Applicant's Claim 41 constitutes a first group which constitutes a claim corresponding to Claim 1 in U.S. Serial No. 08/656,564 filed May 31, 1996. This claim along with claims 2 - 20 in the Application, were allowed in a Notice of Allowance and Issue Fee Due mailed April 15, 1997 by Examiner Kwon. The same claim was filed with only minor amendments in U.S. Serial No. 08/892,738, filed July 15, 1997, as a continuation of U.S. Serial No. 08/656,564. U. S.

Serial No. 08/892,738 was pending until it issued October 5, 1999. These claims were co-pending with U.S. Serial No. 08/625,427 filed March 26, 1996 and ultimately issued May 20, 1997. (the '590 patent)

It is clear that this claim, claiming substantially the same invention as the '590 patent was not only pending within a year of the issue date of the '590 patent, but was co-pending with the '590 patent application for almost twelve months before the patent office. Applicant has continued to maintain the position that Applicant intends to seek an Interference with the '590 patent throughout the entire prosecution of this Application and its predecessor applications.

The second group of claims, Claims 32-40, have been copied from the '590 patent in this Application for the express purpose of provoking an Interference and considered to be directed to the same invention claimed by the Applicant originally.

Argument

The '590 patent was filed as U.S. Serial No. 08/625,427 on March 26, 1996.

Applicant considers that the invention claimed in the '590 patent was derived from Applicant by the patentees' in the '590 patent. Applicant filed U.S. Serial No. 08/656,564 on May 31, 1996. This Application was allowed in a First Office Action Allowance on April 15, 1997.

For a variety of reasons, Applicant elected to amend the claims of this Application. Accordingly, a Continuation Application was filed on July 15, 1997, as U.S. Serial No. 08/892,738. The claims in this Application were slightly amended from the claims in U.S. Serial No. 08/656,564. The claims in U.S. Serial No. 08/656,564 are shown in Appendix A, and the Notice of Allowance is shown in Appendix B. It could be assumed based upon the Notice of Allowance that the allowed claims were in compliance with 35 U.S.C 112. The claims in U.S. Serial 08/892,738 are shown in Appendix C. No claims of the parent case were deleted in the claims filed as shown in Appendix C. Subsequently, preliminary amendments shown in Appendix D and E were made.

A First Office Action on U.S. Serial No. 08/892,738 is shown in Appendix F. In this Office Action, in pertinent part, Applicant's claims were rejected for the first time under 35 U.S.C. 103, in view of the '590 patent. The Examiner opined that the '590 patent disclosed the

invention except for a specific dimension for a seal clearance. Applicant's other claims relating to other features were allowable if rewritten in independent form.

Applicant responded to this Office Action with an amendment (Appendix G) making certain amendments to the claims.

Applicant's Claims 2-4, 9-12, 17-19 21 and 26 were again rejected under 35 U.S.C. 103 as being unpatentable over the '590 patent in an office action. (shown in Appendices H & G) The Examiner repeated his position that the only difference was a specific dimension. It is notable, however, that Claims 5-8, 13-16, and 23, which were indicated allowable, included the feature that an additional air supply was provided to the chamber. This is this the distinction, rather than the dimension, referred to by the Examiner which differentiates these claims. It is noteworthy that in the response filed January 11, 1999, Applicant expressly reserves the right by maintaining Claims 1-4, 9-12, 17-19 and 21 in the application to provoke an Interference with the '590 patent.

In the next Amendment dated March 30, 1999, Applicant specifically reserved the right with respect to Claims 1-4, 9-12, 17-19, 21 and 26 to file these claims in a continuing application. U.S. Patent 5,961,279 (the '279 patent) was then issued based upon the allowed claims in U.S. Serial No. 08/892,738.

The present Application, U. S. Serial No. 09/288,943, is a continuation of U.S. Serial No. 08/892,738, which is a continuation of Application 08/656,564. Accordingly, Applicant is entitled to make claims, which were filed in U.S. Serial No. 08/665,564.

In the present Application as initially filed, Claims 1-20, as included in U.S. Serial No. 08/656,564, were included. In a Preliminary Amendment, Claims 1-20 were cancelled and Claims 21-31 were added. Claims 21-31, as stated in the Preliminary Amendment, represent claims from U.S. Serial No. 08/892,738, which do not include features related to the admission of cooling air into the barrel of the turbine engine in addition to that passing the brush seal. Claims which included this feature had previously been allowed in the '279 patent. Applicant then made the representations necessary to establish the criteria for an Interference. Applicant also copied Claims 32-40 from the '590 patent for the express purpose of provoking an Interference. Applicant also proposed a count for the Interference, which is substantially the count of Claim 1 of the '590 patent.

The Patent Office had not acted on this case by October 12, 1999; therefore, a Status Inquiry was submitted. Numerous calls were made to Examiner Kwon both before and after this Status Inquiry to determine the status of the case.

A second Preliminary Amendment was filed April 13, 2000, based upon conversations with Examiner Kwon wherein it was indicated that the Examiner had various formal objections to Claims 21-31, notwithstanding his initial allowance of these claims in a first action allowance in U.S. Serial No. 08/656,564. In any event, Applicant cancelled all of these claims with the understanding that this would permit the declaration of the Interference based upon the count. Further, Applicant supplied a claims chart which Applicant understood the Examiner to consider as desirable to support the declaration of the Interference. The claims chart showed the support in U.S. Serial No. 09/288,943 for the claims in the '590 patent. A copy of the claim chart is attached hereto as Appendix K.

In response to this Amendment and attempted cooperation with the Patent Office, a rejection was made under 35 U.S.C. 135(b). It was argued that Claims 32-34 were not made prior to one year from the date the '590 patent was granted. Applicant was given thirty (30) days from the mailing date of the Notice to comply with this omission. In response, Applicant filed an Amendment dated August 17, 2000. In this Amendment, Applicant added a new Claim 41. As explained in the Amendment, new Claim 41 corresponds to Claim 1 as originally filed in U.S. Serial No. 08/656,564. This claim is referred to in the discussion as Claim 1, notwithstanding the fact that the claim bears 41 in this application.

It is considered that Applicant is fully entitled to make this claim since Applicant is entitled to the benefit of the filing date of U.S. Serial No. 08/656,564. It is submitted that this claim fully covers or renders obvious all the features claimed in the claims of the '590 patent. Most particularly, please note that Applicant's specification includes full support for a refurbished gas turbine engine (or a new gas turbine engine) with a component having at least one knife-edge seal for inhibiting air leakage through an intercomponent gap between the component and a second component, wherein the refurbished component (which is not identified as either the first or the second component in the '590 patent claim) is characterized by a brush seal mounted on the refurbished component (the stationary inner barrel) in tandem with the knife-edged seal, the bristles of the seal extending toward the second component for impeding the leakage of air through the intercomponent gap. It is respectfully submitted that Claim 41

includes all the features of this claim. It is further submitted that all of the remaining claims of the '590 patent are rendered obvious or are within the scope of this claim.

It is further noted that the "gap" referred to by the Examiner, which appears in subparagraph of Applicant's claim 41(e)iii refers to a gap between the Diameter and the end of the bristles. There is no reference to this gap in the '590 patent claim. The intercomponent gap referred to in that claim refers to the gap between the first component and the second component. Accordingly, it is respectfully submitted that this claim, which the Examiner entered with no objections, covers the same invention claimed by the '590 patent. It is further submitted that the remaining Claims 32-40 also claim substantially the same invention as Applicant has claimed since April 4, 1996.

The Examiner's response to this argument is that Applicant's Claims 32-41 appeared first on April 9, 1999. This position is seriously flawed in that Claim 41 was first filed as Claim 1 on April 4, 1996. The reason the remaining Claims 32-41 are the only other remaining claims in the case is because of the accommodation to the Examiner in an attempt to provoke an interference.

It is believed clear that Claim 41 is entitled to a filing date of May 31, 1996, and accordingly, since it claims the same invention as the '590 patent, entitles Applicant to an Interference with the '590 patent. As indicated previously, it is believed that all of the remaining claims of the '590 patent are obvious in view of Applicant's Claim 41. Applicant is entitled to and willing to resubmit cancelled claims 21 - 31 if the Board considers it desirable.

It is respectfully submitted further that Applicant's claims to the same invention as claimed in the '590 patent were not only pending within one year of the issue date of the '590 patent but that these claims were pending for almost one year prior to the issuance of the '590 patent and continued to pend until the current time. Accordingly, any attempt to claim that Applicant did not have claims pending for substantially the same invention as claimed in the '590 patent within one year of the issuance of this patent is simply ludicrous.

Further it is pointed out that in MPEP, Section 2307, cited by the Examiner, it states that "Examiner should note that 37 C.F.R. 1.607 requires the examination of an application in which applicant seeks an interference with a patent 'shall be conducted with special dispatch.'" This case has not been handled with "special dispatch." This case was filed April 9, 1999, and to date no interference has been declared and only recently has this case been given a Final Rejection. It is respectfully submitted that the handling of this case is not in compliance with MPEP, Section

2307 and that the handling of this case has not been in accordance with 37 C.F.R. 1.607(a). It is believed that Applicant has fully complied with all requirement of 37 C.F.R. 1.607(a) and that the foregoing recitation of facts in more than sufficient to establish that Applicant's claims were pending within one year of the issuance of the '590 patent.

Accordingly, it is respectfully requested that the Examiner be reversed and that an Interference be declared between this application and the '590 patent.

Respectfully submitted,


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What is claimed is:

1. A stationary gas turbine engine for a power plant, comprising:

- (a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;
- (b) a turbine shaft-coupled to the rotor of the compressor;
- (c) a combustor fluid coupled between the compressor and the turbine;
- (d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine;
- (e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

- (i) a ring-shaped holder;
- (ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and
- (iii) means for fastening the holder to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

2. The engine of claim 1, further comprising means for selectively altering the flow of cooling air from the chamber, comprising:

(a) a passage extending through one wall of the inner barrel;

(b) means for connecting the fluid port to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber; and

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air.

3. The engine of claim 2, wherein the compressor provides at least a portion of the auxiliary source.

4. The engine of claim 3, wherein the means for changeably restricting comprises means for removably mounting a device in the passage, the device being selected from the set consisting of a plug and a jet.

5. The engine of claim 1, wherein the means for selectively altering further comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) means for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

6. The engine of claim 5, wherein the valve is a calibrated needle valve.

7. The engine of claim 5, wherein the means for monitoring comprises a temperature sensor for indicating a temperature within the chamber.

8. The engine of claim 5, further comprising an outer barrel surrounding the inner barrel and having a fluid port extending radially through one wall thereof, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the means for connecting the fluid port comprising a fluid conduit connected between the passage and the fluid port, and means for connecting the auxiliary source of pressure air to the fluid port external of the outer barrel.

9. The engine of claim 1, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, wherein the means for fastening the brush seal to the inner barrel member comprises the holder being fastened to the insert ring by a plurality of threaded fasteners.

10. The engine of claim 9, wherein the brush seal, including the holder thereof is segmented for facilitating assembly with the insert ring.

11. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D , the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(a) a ring-shaped holder;

(b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(c) means for fastening the holder to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

12. The turbine power plant of claim 11, the further improvement comprising means for selectively altering the flow of cooling air from the chamber, comprising:

(a) a passage extending through one wall of the inner barrel;

(b) means for connecting the passage to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber;

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air.

13. In the turbine power plant of claim 11, wherein the means for selectively altering comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) means for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

14. In the turbine power plant of claim 13, the further improvement wherein the means for adjustably restricting comprises a calibrated needle valve.

15. In the turbine power plant of claim 13, the further improvement wherein the means for monitoring comprises a temperature sensor for indicating a temperature within the chamber.

16. In the turbine power plant of claim 13, wherein the power plant also having an outer barrel surrounding the inner barrel, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the further improvement comprising a fluid port extending radially through one wall of the outer barrel, the means for connecting the fluid port comprising a fluid conduit connected between the passage and the fluid port, and means for connecting the auxiliary source of pressure air to the fluid port external of the outer barrel.

17. A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D , comprising the steps of:

(a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;

(b) connecting the brush seal in augmenting relation to the labyrinth seal; and

(c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive.

18. The method of claim 17, wherein the power plant includes an insert ring fastened to the inner barrel member in axially spaced relation to a portion of the rotor member, the method comprising the further steps of:

(a) removing the insert ring from the inner barrel member;

(b) providing an adapter ring;

(c) mounting the brush seal to the adapter ring; and

(d) fastening the adapter ring to the inner barrel member in place of the insert ring.

19. The method of claim 18, wherein the step of providing the adapter ring comprises the step of modifying the insert ring.

20. The method of claim 17, comprising the further steps of:

(a) providing an auxiliary source of pressure air;

(b) fluid-connecting the auxiliary source to an interior cavity portion of the inner barrel member for augmenting the flow of cooling air;

(c) connecting an adjustable valve between the auxiliary source and the inner barrel member for variably restricting air flow from the auxiliary source and the inner barrel member;

(d) monitoring an operating parameter of the power plant; and

(e) adjusting the adjustable valve in response to changes in the operating parameter.

APPENDIX B



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

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WASHINGTON, D.C. 20231

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

34M1/0415

STEPHEN R SECCOMBE
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*Issue Fee and Formal Drawings
due July 15, 1997*

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/656,564	05/31/96	020	KWON, J	04/15/97
First Named Applicant	INGISTOV, STEVE			

OF TURBINE POWER PLANT HAVING MINIMAL-CONTACT BRUSH SEAL AUGMENTED
LABYRINTH SEAL.

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
11465	415-170.100	M01	UTILITY	NO	\$1290.00	07/15/97

APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT.
PROSECUTION ON THE MERITS IS CLOSED.

ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS
APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

Review the SMALL ENTITY status shown above.
If the SMALL ENTITY is shown as yes, verify your current SMALL ENTITY status:

If the status is changed, pay twice the amount of the FEE DUE shown and notify the Patent and Trademark Office of the change in status, or
If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay FEE DUE shown above, or

B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

Part B of this notice should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE.
Even if the ISSUE FEE has already been paid by charge to deposit account, Part B should be completed and returned.
If you are charging the ISSUE FEE to your deposit account, section "6b" of Part B should be completed.

All communications regarding this application must give application number and batch number.
Please direct all communication prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

Notice of Allowability

Application No.
08/656,564

Applicant(s)
Steve Ingistov

Examiner
John T. Kwon

Group Art Unit
3401



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

☐ This communication is responsive to _____

☒ The allowed claim(s) is/are 1-20

☐ The drawings filed on _____ are acceptable.

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.

☒ Applicant MUST submit NEW FORMAL DRAWINGS

☐ because the originally filed drawings were declared by applicant to be informal.

☒ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. 2.

☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.

☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☒ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

☐ Interview Summary, PTO-413

☐ Examiner's Amendment/Comment

☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material

☐ Examiner's Statement of Reasons for Allowance

JOHN T. KWON
PRIMARY EXAMINER
ART UNIT 3401

APPENDIX C

11465-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:) Group Art Unit: 3401
STEVE INGISTOV) (prior application)
Serial No.:) Examiner: J. Kwon
(FWC of 08/656,564)) (prior application)
Filed:)
(prior application: 5/31/96))
For: TURBINE POWER PLANT HAVING) July 15, 1997
MINIMAL-CONTACT BRUSH SEAL)
AUGMENTED LABYRINTH SEAL) San Bernardino, California

PRELIMINARY AMENDMENT

Assistant Commissioner
For Patents
Washington, D. C. 20231

Sir:

I hereby certify that this correspondence is being deposited
with the U.S. Postal Service as First Class Mail in an
envelope addressed to: Assistant Commissioner for
Patents, Washington, DC 20231, on July 15, 1997
15 JUL 97 *Ame M. Foley*
(date signed)

Please amend the above-referenced application as follows:

IN THE CLAIMS:

Please amend claims 1-5, 7-9, and 11-16 as follows:

1. A stationary gas turbine engine for a power plant,
comprising:

(a) a multistage axial compressor, the compressor having a
rotor, the rotor having a cylindrical land region downstream of a
last-stage of the compressor, the land region having an outside
diameter D;

(b) a turbine shaft-coupled to the rotor of the
compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a main passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine; and

(e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

(i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(iii) [means for fastening] the holder being fastened to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

2. The engine of claim 1, further comprising [means for selectively altering the flow of cooling air from the chamber, comprising:

(a)] a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine [;

(b) means for connecting the fluid port to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber; and

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air].

3. The engine of claim 2, [wherein the compressor provides at least a portion of the auxiliary source] further comprising a structure for changeably restricting the barrel passage.

4. The engine of claim 3, wherein the [means] structure for changeably restricting comprises [means] a receptacle for removably mounting a device in the passage, the device being selected from the set consisting of a plug and a jet.

5. The engine of claim [1] 22, [wherein the means for selectively altering] further [comprises] comprising:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) [means] an instrument for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

7. The engine of claim 5, wherein the [means for monitoring] instrument comprises a temperature sensor for indicating a temperature within the chamber.

8. The engine of claim 5, further comprising an outer barrel surrounding the inner barrel and having a fluid port extending radially through one wall thereof, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, [the means for connecting the fluid port comprising] a fluid conduit connected within the outer barrel between the barrel passage and the fluid port, and [means for connecting] the auxiliary source of pressure air being connected to the fluid port external of the outer barrel, whereby air from the auxiliary source flows into the chamber in pressure isolation from the air flowing to the combustor.

9. The engine of claim 1, further comprising an insert ring connecting segments of the inner barrel member, the insert ring being located proximate the land region of the rotor, [wherein the means for fastening the brush seal to the inner barrel member

comprises] the holder being fastened to the insert ring by a plurality of threaded fasteners.

11. In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, the improvement comprising a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(a) a ring-shaped holder;

(b) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(c) [means for fastening] the holder being fastened to the inner barrel member,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

12. The turbine power plant of claim 11, wherein a chamber within the inner barrel member forms a passage for cooling air from the compressor, the further improvement comprising [means for selectively altering the flow of cooling air from the chamber, comprising:

(a)] a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine [;

(b) means for connecting the passage to an auxiliary source of pressure air external of the inner barrel, whereby pressure air from the auxiliary source augments the flow of cooling air from the chamber;

(c) means for changeably restricting flow of pressure air into the chamber from the auxiliary source of pressure air].

13. In the turbine power plant of claim [11] 24, wherein the [means for selectively altering] improvement further comprises:

(a) a valve for adjustably restricting flow of pressure air into the chamber from the auxiliary source of pressure air; and

(b) [means] an instrument for monitoring an operating parameter of the engine, the operating parameter being responsive to the flow of cooling air from the chamber.

14. In the turbine power plant of claim 13, the further improvement wherein the [means for adjustably restricting comprises] valve is a calibrated needle valve.

15. In the turbine power plant of claim 13, the further improvement wherein the [means for monitoring] instrument comprises a temperature sensor for indicating a temperature within the chamber.

16. In the turbine power plant of claim 13, [wherein] the power plant also having an outer barrel surrounding the inner barrel, the gas flow from the compressor to the combustor passing between the outer barrel and the inner barrel, the further improvement comprising a fluid port extending radially through one wall of the outer barrel, [the means for connecting the fluid port comprising] a fluid conduit connected between the barrel passage and the fluid port, and [means for connecting] the auxiliary source of pressure air being connected to the fluid port external of the outer barrel, whereby air from the auxiliary source flows into the chamber in pressure isolation from the air flowing to the combustor.

Please add claims 21-24 as follows:

21. The engine of claim 2, wherein the barrel passage is one of a plurality of barrel passages.

22. The engine of claim 2, further comprising an auxiliary source of pressure air connected to the barrel passage for augmenting air flow into the main passage, thereby augmenting cooling air flow from the main passage to be mixed with the combustion gases.

23. The engine of claim 22, wherein the compressor provides at least a portion of the auxiliary source.

24. The engine of claim 12, further comprising an auxiliary source of pressure air connected to the barrel passage for augmenting air flow into the main passage, thereby augmenting cooling air flow from the main passage to be mixed with the combustion gases.

REMARKS

Claims 1-24 are in this application. Claims 1-5, 7-9, and 11-16 have been amended; and claims 21-24 have been added. No new matter is added.

The amendment of claim 1 changing "passage" to "main passage", and the amendment of claim 2 changing "passage" to "barrel passage serves to clarify the distinction between the respective passages. Support for the amendment of claim 3 is found in claim 2 as originally presented. Support for the amendment of claim 8 is found in the specification at page 12, lines 10-20. Claim 5, originally dependent from claim 1, has been amended to depend from the new claim 22, and further as supported by the specification at page 12, lines 23-31.

Support for the new claim 21 is found in the specification at page 12, lines 5-7. Support for the new claims 22 and 24 is found in the specification at page 12, lines 10-12, and in claims 2 and 12 as originally presented. Support for the new claim 23 is found in claim 3 as originally presented.

A notice of allowance was mailed as the first Office Action in the parent case (application Serial No. 08/656,564 that was filed on May 31, 1996) on April 15, 1997. Formal drawings were substituted on May 27, 1997. The purpose of this application is to present the claims in better form. It is believed that no substantial new question of patentability is raised by this amendment.

Respectfully submitted,

SHELDON & MAK

Date: 15 July 1997 By Stephen R. Seccombe
Stephen R. Seccombe
Reg. No. 31,136

290 North D Street, Suite 503
San Bernardino, California 92401
(909) 889-3649

APPENDIX D

11465-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:) Group Art Unit: 3401
)
Steve Ingistov) Examiner: J. Kwon (prior application)
)
Serial No.: 08/892,738)
)
Filed: July 15, 1997)
)
For: TURBINE POWER PLANT HAVING) December 23, 1997
MINIMAL-CONTACT BRUSH SEAL)
AUGMENTED LABYRINTH SEAL) San Bernardino, California

SECOND PRELIMINARY AMENDMENT AND
INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

I hereby certify that this correspondence is being deposited
with the U.S. Postal Service as First Class Mail in an
envelope addressed to: Assistant Commissioner for
Patents, Washington, DC 20231, on December 23, 1997
23 Dec 97 [Signature]
(date signed)

Please amend the above-identified patent application as follows:

IN THE SPECIFICATION:

In the specification at page 1, line 21, change "if" to --of--.

At page 7, lines 5 and 7, change "18" to --24-- (two occurrences).

REMARKS

Claims 1-24 are in this application. No new matter is added. The amendments to
the specification correct typographical errors.

INFORMATION DISCLOSURE STATEMENT

Attached hereto is at least one form PTO-1449 (likeness) listing documents believed relevant to the subject application. It is respectfully requested that these documents be considered by the Examiner and an initialed copy of each form be returned to the undersigned.

It is believed that this disclosure complies with the requirements of 37 C.F.R. 1.56 and the Manual of Patent Examining Procedures Section 707.05(b). If for some reason the Examiner considers otherwise, it is respectfully requested that the undersigned be called so that any deficiencies can be remedied.

A copy of each document is enclosed.

Document AR - Pratt & Whitney "Brush Seals" brochure.

CERTIFICATION UNDER 37 C.F.R. 1.97(e)

It is believed that this Information Disclosure Statement is timely filed, in that it is believed that an Office Action has not yet been mailed in this application.

In the event that this certification is unsatisfactory, the Commissioner os hereby
authorized to charge payment of any additional fees associated with the Supplemental Information
Disclosure Statement to Deposit Account No. 19-2090.

Respectfully submitted,

SHELDON & MAK

Date: 23 December 1997

By Stephen R. Seccombe
Stephen R. Seccombe
Reg. No. 31,136

290 North "D" Street, Suite 503
San Bernardino, California 92401
(909) 889-3649

APPENDIX E

11465-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)	Group Art Unit: 3401
)	
Steve Ingistov)	Examiner: J. Kwon (prior application)
)	
Serial No.: 08/892,738)	
)	
Filed: July 15, 1997)	
)	
For: TURBINE POWER PLANT HAVING)	December 23, 1997
MINIMAL-CONTACT BRUSH SEAL)	
AUGMENTED LABYRINTH SEAL)	San Bernardino, California

THIRD PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

<p>I hereby certify that this correspondence is being deposited with the U.S. Postal Service as First Class Mail in an envelope addressed to: Assistant Commissioner for Patents, Washington, DC 20231, on January 12, 1998</p> <p><u>12 Jan 98</u> <u>James M. Coffey</u> (date signed)</p>
--

Please amend the above-identified patent application as follows:

IN THE CLAIMS:

Please add claims 25 and 26, as follows:

25. In an adapter ring for aligning a segmented inner barrel of a stationary gas turbine engine in concentric relation to a rotor member, a land region of the rotor member extending within the adapter ring, the improvement comprising:

(a) a cavity for receiving a brush seal ring of a brush seal being oriented for sealing proximate the land region of the rotor member; and

(b) a face surface having a plurality of threaded fastener openings therein for securing a retainer plate in overhanging relation to the cavity, thereby to hold the brush seal ring in fixed relation concentric with the inner barrel.

26. A method for generating electrical power comprising the steps of:

- (a) providing the improved power plant of claim 11; and
- (b) monitoring an operating parameter of the power plant.

REMARKS

Claims 1-26 are in this application. By this amendment, claims 25 and 26 have been added. No new matter is added.

Support for the new claim 25 is found in the specification at page 10, the paragraph continuing on page 11, and in claims 9 and 10 as originally presented. Support for the new claim 26 is found in claims 1 and 20 as originally presented.

Respectfully submitted,

SHELDON & MAK

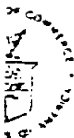
Date: 12 January 1998

By

Stephen R. Seccombe
Stephen R. Seccombe
Reg. No. 31,136

290 North "D" Street, Suite 503
San Bernardino, California 92401
(909) 889-3649

APPENDIX F



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office
Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY COCKET NO.
08/892,738	07/15/97	INSISTON	11485-1

STEPHEN R. SECORNE
SHELDON & MAK
290 NORTH F STREET
SUITE 503
SAN BERNARDINO CA 92401

08/8170804

7

EXAMINER

KWON, J

ART UNIT

PAPER NUMBER

3747

DATE MAILED:

08/04/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/892,738

Applicant(s)
Steva Ingistov

Examiner
John T. Kwon

Group Art Unit
3747

☐ Responsive to communication(s) filed on _____

☐ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.O. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-26 is/are pending in the application.

Of the above, claim(s) 25 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1-4, 9-12, 17-19, 21, and 26 is/are rejected.

☒ Claim(s) 5-8, 13-16, 20, and 22-24 is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been

☐ received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 9

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

... SEE OFFICE ACTION ON THE FOLLOWING PAGES ...

Serial Number: 08/

Page 2

Art Unit: 3747

DETAILED ACTION

Housekeeping

Applicant(s) is(are) suggested to list a current telephone number, a facsimile number and a list of the attachments, if any, under the signature of the attorney/applicant for each response to the Office action(s) in order to expedite and make accurate the prosecution of the application.

1. Applicant's preliminary amendment dated July 15, December 29, 1997 and January 15, 1998 have been entered.

2. The submission of the Information Disclosure Statement dated December 29, 1997 has been received and fully considered. No further Information Disclosure Statement is in the records.

Specification

3. Applicant is advised to insert the current status of the application S.N. 656,564.

4. The disclosure is objected to because of the following informalities: Applicant's proposed amendment to page 7, lines 5 and 7 of the specification has not been entered because the word "18" does not appear in said line. Appropriate correction is required.

Serial Number: 08/

Page 3

Art Unit: 3747

Election/Restriction

5. Restriction to one of the following inventions is required under 35 U.S.C. 121:

- I. Claims 1-24 and 26, drawn to a stationary gas turbine engine with a brush seal, classified in class 415, subclass 170.1.
- II. Claim 25, drawn to an adapter ring, classified in class 403, subclass .

6. The inventions are distinct, each from the other because of the following reasons:

Inventions I and II are unrelated. Inventions are unrelated if it can be shown that they are not disclosed as capable of use together, or they have different modes of operation, or they have different functions, or they have different effects. (MPEP § 806.04, MPEP § 808.01). In the instant case the inventions are unrelated if it can be shown that they are not disclosed as capable of use together.

7. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.

8. During a telephone conversation with Seccombe on May 22, 1998 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-24. Affirmation of this election must be made by applicant in responding to this Office action. Claims 25 and 26 are

Serial Number: 08/

Page 4

Art Unit: 3747

withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

9. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a diligently-filed petition under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(h).

Claim Rejections - 35 USC § 112

10. Claims 2-8 and 21-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It is not known what "a structure for changeably restricting . . ." (claim 2, line 3) refers to.

Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 1-4, 9-12, 17-19, 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouchard (US 5,630,590). Bouchard discloses a gas turbine engine with a brush seal (60) for restricting air passage into the chamber from a compressor. The difference between the prior art reference and the instant invention is the specific dimension for the seal clearance. In regard to the claimed particular dimension for the brush seal clearance, one skilled in the art is familiar with fluid mechanic and is aware of the necessity to design the seal for a maximum efficiency as well as the durability as major factors. Therefore, to optimize or select the suitable dimension for the clearance is within the ability of one of ordinary skill in the art. If such dimensional relationship is critical, the applicant has the burden of providing such criticality. In re Swenson et al, 30 CCPA 809, 132 F.2d 1020, 56 USPQ 372; In re Scherl, 33 CCPA 1193, 156 F.2d 72, 70 USPQ 204.

Allowable Subject Matter

13. Claims 5-8, 13-16, 20 and 22-24 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Serial Number: 08/

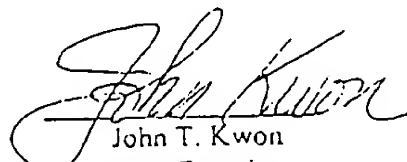
Page 6

Art Unit: 3747

Contact Information

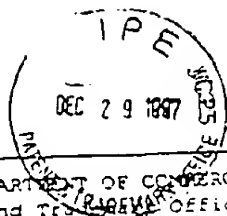
Any inquiry concerning this communication should be directed to Examiner Kwon at telephone number (703) 308-1046 and facsimile numbers (703) 305-3588. The examiner can normally be reached on Monday thru Friday from 8:30 AM to 5:00 PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.


John T. Kwon
Primary Examiner
Art Unit 3747

Enclosure(s);

See the attachment(s) section of the Office Action Summary.



Sheet 1 of 1

Form PTO-1449
(Likeness)U.S. DEPARTMENT OF COMMERCE
Patent and Trademark OfficeAssigned & Official Number
11465-1Serial Number
08/892,738

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Applicant
Steve IngistovFiling Date
HerewithClass
~~3101~~ 3747

U.S. PATENT DOCUMENTS

*EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
	AA						
	AB						
	AC						
	AD						
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	AL							
	AM							
	AN							
	AO							
	AP							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

OK	AR	"Brush Seals" brochure; Pratt & Whitney, North Berwick, Maine; 2 pp.; September, 1993.
	AS	
	AT	

EXAMINER

KWON

DATE CONSIDERED

5/22/98

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP 9609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant

APPENDIX G

11465-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of:)	Group Art Unit: 3747
Steve Ingistov)	Examiner: J. Kwon
Serial No.: 08/892,738)	
Filed: July 15, 1997)	
For: TURBINE POWER PLANT HAVING)	January 11, 1999
MINIMAL-CONTACT BRUSH SEAL)	
AUGMENTED LABYRINTH SEAL)	San Bernardino, California

AMENDMENT IN RESPONSE TO FIRST OFFICE ACTION

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

In response to the first office action of June 4, 1998, which was first received by the Applicant from the Examiner by fax on January 6, 1999, please amend the above-identified patent application as follows:

IN THE SPECIFICATION:

In the specification at page 1, amend the first sentence to read:

--This application is a continuation of application Serial No. 08/656,564, filed May 31, 1996, abandoned.--

At page 7, lines 24 and 26, change "18" to --24-- (two occurrences).

IN THE CLAIMS:

Please amend claims 3, 4, 20, 22, and 24, as follows:

In claim 3, line 3, delete "changeably".

In claim 4, line 2, delete "changeably".

20. (Amended) [The method of claim 17, comprising the further steps of:] A method for controlling cooling air flow in a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, comprising the steps of:

(a) providing a brush seal having a ring-shaped holder, a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder;

(b) connecting the brush seal in augmenting relation to the labyrinth seal;
and

(c) spacing the bristle members from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive;

[(a)] (d) providing an auxiliary source of pressure air;

[(b)] (e) fluid-connecting the auxiliary source to an interior cavity portion of the inner barrel member for augmenting the flow of cooling air;

[(c)] (f) connecting an adjustable valve between the auxiliary source and the inner barrel member for variably restricting air flow from the auxiliary source and the inner barrel member;

[(d)] (g) monitoring an operating parameter of the power plant; and

[(e)] (h) adjusting the adjustable valve in response to changes in the operating parameter.

22. (Amended) [The engine of claim 2, further comprising] A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;

(b) a turbine shaft-coupled to the rotor of the compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a chamber within the inner barrel member forming a main passage for cooling air from the

compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine; and

(e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

(i) a ring-shaped holder;

(ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

(iii) the holder being fastened to the inner barrel member;

(f) a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine; and

(g) an auxiliary source of pressure air connected to the barrel passage for augmenting air flow into the main passage, thereby augmenting cooling air flow from the main passage to be mixed with the combustion gases,

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

24. (Amended) [The engine of claim 12, further comprising] In a turbine power plant having a multistage axial compressor, a turbine shaft-coupled to a rotor of the compressor, a combustor fluid-coupled between the compressor and the turbine, and a labyrinth seal between the rotor and a stationary inner barrel member, the rotor having a cylindrical land region of diameter D, a chamber within the inner barrel member forms a passage for cooling air from the compressor, the improvement comprising:

(a) a brush seal connected to the inner barrel and augmenting the labyrinth seal, being fluid connected in series therewith, the brush seal comprising:

(i) a ring-shaped holder;

[(b)] (ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and

[(c)] (iii) the holder being fastened to the inner barrel member;

(b) a barrel passage extending through one wall of the inner barrel for passing air therethrough downstream of the brush seal, thereby altering the flow of cooling air from the chamber to be mixed with the combustion gases upstream of the turbine;

(c) an auxiliary source of pressure air connected to the barrel passage for

augmenting air flow into the main passage, thereby augmenting cooling air flow from the main passage to be mixed with the combustion gases;

wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

REMARKS

Claims 1-26 are in this application. Claims 5-8, 13-16, 20, and 22-24 were indicated to contain allowable subject matter. Applicant confirms the election to prosecute the invention of Group 1, claims 1-14 and 26. By this amendment, claims 20, 22, and 24 have been amended. Re-examination, reconsideration and allowance of this application is respectfully requested. No new matter is added. Entry of the Amendment is requested based on prompt response to fax receipt of an improperly addressed Office Action as explained below.

Applicant wishes to thank Examiner Kwon for the courtesies that were extended to the undersigned during telephone interviews on January 6 and 7, 1999, in which the Examiner inquired as to whether the application was indeed to be abandoned. It was determined that the Office Action of June 4, 1998, was sent to a wrong address, and the Examiner faxed the Office Action to the undersigned on January 7, 1999.

Claim 20 has been amended to incorporate the limitations of claim 17 as originally presented. Claim 22 has been amended to incorporate the limitations of claims 1 and 2 as previously presented. Claim 24 has been amended to include the limitations of claims 11 and 12 as previously presented.

REJECTION UNDER 35 U.S.C. 112

Claims 2-8 and 21-23 were rejected under 35 U.S.C. 112, second paragraph, as being indefinite. It was suggested that "a structure for changeably restricting . . ." at claim 2; line

3 is indefinite. Applicant believes that the quoted phrase appears in claim 3, not claim 2. Claims 3 and 4 have been amended to delete "changeably". Accordingly, it is believed that the rejection of claims 2-8 and 21-23 under 25 U.S.C. 112, second paragraph, has been overcome by the amendment and remarks; withdrawal thereof is requested.

REJECTION UNDER 35 U.S.C. 103

Claims 1-4, 9-12, 17-19, 21, and 26 were rejected under 35 U.S.C. 103 as being unpatentable over the Bouchard reference. It was suggested that to optimize or select the suitable dimension for the seal clearance is within the ability of one of ordinary skill in the art. These rejections are believed no longer appropriate regarding claims 5-8, 13-16, 20, and 20-24, in view of the amendment of claims 20, 22, and 24 to be in independent form.

Claims 1-4, 9-12, 17-19, and 21 have been retained for preserving Applicant's rights to a possible Interference with the Bouchard patent reference.

Accordingly, it is believed that the rejections of claims 5-8, 13-16, 20, and 20-24, under 35 U.S.C. 103 have been overcome by the amendment and remarks; allowance thereof is respectfully requested.

If for some reason this Amendment cannot be entered, it is respectfully requested that a telephone call be placed to the undersigned so that appropriate remedial steps can be expedited.

Respectfully submitted,

SHELDON & MAK

Date: 11 January 1999

By Stephen R. Seccombe
Stephen R. Seccombe
Reg. No. 31,136

290 North "D" Street, Suite 503
San Bernardino, California 92401
(909) 889-3649

APPENDIX H



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

Address: COMMISSIONER OF PATENTS AND TRADEMARKS
Washington, D.C. 20231

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/08/97	07/15/97	STEPHEN R. SECORSE	11485-1

STEPHEN R. SECORSE
SHIELDON & MAK
200 NORTH D STREET
SUITE 500
SAN BERNARDINO CA 92401

08/17/0216

EXAMINER

KWON, J

ART UNIT

0747

PAPER NUMBER

15

DATE MAILED: 02/16/98

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/892,738

Applicant(s)

Steve Ingistov

Examiner

John T. Kwon

Group Art Unit

3747



☒ Responsive to communication(s) filed on the telephone inquiry on Feb. 8, 1999

☒ This action is FINAL.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-26 is/are pending in the application.

Of the above, claim(s) 25 is/are withdrawn from consideration.

☒ Claim(s) 5-8, 13-16, 20, and 22-24 is/are allowed.

☒ Claim(s) 1-4, 9-12, 17-19, 21, and 26 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.

☐ received in Application No. (Series Code/Serial Number) _____

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☐ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

SEE OFFICE ACTION ON THE FOLLOWING PAGES ...

Art Unit: 3747

DETAILED ACTION

Housekeeping

Applicant(s) is(are) suggested to list a current telephone number, a facsimile number and a list of the attachments, if any, under the signature of the attorney/applicant for each response to the Office action(s) in order to expedite and make accurate the prosecution of the application.

1. This office action is replacement of the previous office action mailed January 21, 1999.
2. Applicant's amendment dated January 11, 1999 have been entered.
3. The submission of the Information Disclosure Statement dated December 29, 1997 has been received and fully considered. No further Information Disclosure Statement is in the records.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-4, 9-12, 17-19, 21 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bouchard (US 5,630,590). Bouchard discloses a gas turbine engine with a brush seal (60) for restricting air passage into the chamber from a compressor. The difference

Art Unit: 3747

between the prior art reference and the instant invention is the specific dimension for the seal clearance. In regard to the claimed particular dimension for the brush seal clearance, one skilled in the art is familiar with fluid mechanic and is aware of the necessity to design the seal for a maximum efficiency as well as the durability as major factors. Therefore, to optimize or select the suitable dimension for the clearance is within the ability of one of ordinary skill in the art. If such dimensional relationship is critical, the applicant has the burden of providing such criticality. In re Swenson et al, 30 CCPA 809, 132 F.2d 1020, 56 USPQ 372; In re Scherl, 33 CCPA 1193, 156 F.2d 72, 70 USPQ 204.

Allowable Subject Matter

6. Claims 5-8, 13-16, 20 and 22-24 are allowed.

Response to Arguments

7. Applicant's arguments filed January 11, 1999 have been fully considered but they are not persuasive.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

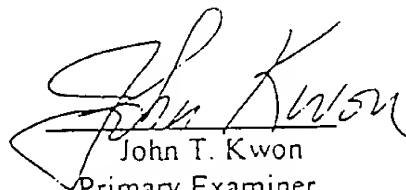
Art Unit: 3747

A shortened statutory period for response to this final action is set to expire THREE MONTHS from the date of this action. In the event a first response is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event will the statutory period for response expire later than SIX MONTHS from the date of this final action.

Contact Information

Any inquiry concerning this communication should be directed to Examiner Kwon at telephone number (703) 308-1046 and facsimile numbers (703) 305-3588. The examiner can normally be reached on Monday thru Friday from 8:30 AM to 5:00 PM.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.


John T. Kwon
Primary Examiner
Art Unit 3747

February 8, 1999

Enclosure(s):

See the attachment(s) section of the Office Action Summary.

APPENDIX I

FILE NO.: ARCO-25,195; DP 50-06-1641B

PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Steve Ingistov

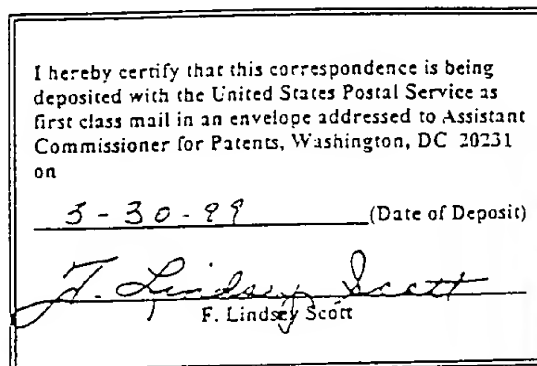
Serial No.: 08/892,738

Filed: 7/15/97

Group: 3401

Examiner: J. Kwon

For: "Turbine Power Plant Having Minimal-Contact
Brush Seal Augmented Labyrinth Seal"



Box Non-Fee Amendment
Assistant Commissioner for Patents
Washington, D.C. 20231

AMENDMENT

In response to the Office Action dated January 21, 1999, as corrected in a faxed Office Action responsive to a telephone inquiry on February 8, 1999, wherein Applicant's Claim 25 was withdrawn from consideration, Claims 5-8, 13-16, 20 and 22-24 were allowed, and wherein Claims 1-4, 9-12, 17-19, 21 and 26 were rejected, please consider the following amendments and comments.

The Office Action summarized above was issued as a replacement of the previous Office Action mailed January 21, 1999.

IN THE CLAIMS

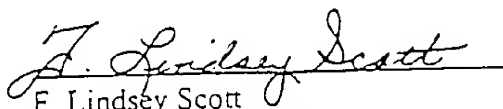
Claims 1-4, 9-12, 17-19, 21 and 26 are withdrawn without prejudice and with the expressly reserved right to file these claims in a continuing application.

Claim 25 has been withdrawn from consideration.

COMMENTS

The claims remaining in the case, i.e. Claims 5-8, 13-16, 20 and 22-24 have been allowed. Since these claims are the only claims currently remaining in the case, it is believed that this case is in condition for allowance and such is respectfully solicited.

Respectfully submitted,

A handwritten signature in cursive script, reading "F. Lindsey Scott", written over a horizontal line.

F. Lindsey Scott
Registration No. 26,230
972/661-0102
Attorney for Applicant

FLS:jp
Law Offices of F. Lindsey Scott
14651 Dallas Parkway, Suite 102
Dallas, Texas 75240-7477

APPENDIX J



UNITED STATES DEPARTMENT OF COMMERCE
Patent and Trademark Office

NOTICE OF ALLOWANCE AND ISSUE FEE DUE

085170415

STEPHEN R. SECORNE
SHELDON & NAK
270 NORTH D STREET
SUITE 300
SAN BERNARDINO CA 92401

APPLICATION NO.	FILING DATE	TOTAL CLAIMS	EXAMINER AND GROUP ART UNIT	DATE MAILED
08/29/92, 1704	07/15/92	112	SHANNON	08/15/92
First Named Applicant				
TITLE OF INVENTION				

ROCKET POWER PLANT HAVING MINIMAL-CONTACT BRUSH SEAL AUGMENTED
LABYRINTH SEAL

ATTY'S DOCKET NO.	CLASS-SUBCLASS	BATCH NO.	APPLN. TYPE	SMALL ENTITY	FEE DUE	DATE DUE
11483-1	415-170	200	UTILITY	NO	\$1,000.00	11/15/92

THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED.

THE ISSUE FEE MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED.

HOW TO RESPOND TO THIS NOTICE:

I. Review the SMALL ENTITY status shown above.

If the SMALL ENTITY is shown as YES, verify your current SMALL ENTITY status:

A. If the status is changed, pay twice the amount of the FEE DUE shown above and notify the Patent and Trademark Office of the change in status, or

B. If the status is the same, pay the FEE DUE shown above.

If the SMALL ENTITY is shown as NO:

A. Pay FEE DUE shown above, or

B. File verified statement of Small Entity Status before, or with, payment of 1/2 the FEE DUE shown above.

II. Part B-Issue Fee Transmittal should be completed and returned to the Patent and Trademark Office (PTO) with your ISSUE FEE. Even if the ISSUE FEE has already been paid by charge to deposit account, Part B Issue Fee Transmittal should be completed and returned. If you are charging the ISSUE FEE to your deposit account, section "4b" of Part B-Issue Fee Transmittal should be completed and an extra copy of the form should be submitted.

III. All communications regarding this application must give application number and batch number. Please direct all communications prior to issuance to Box ISSUE FEE unless advised to the contrary.

IMPORTANT REMINDER: Utility patents issuing on applications filed on or after Dec. 12, 1980 may require payment of maintenance fees. It is patentee's responsibility to ensure timely payment of maintenance fees when due.

YOUR COPY

Interview Summary

Application No.
08/892,738

Applicant(s)
Steve Ingistov

Examiner
John T. Kwon

Group Art Unit
3747

All participants (applicant, applicant's representative, PTO personnel):

(1) John T. Kwon

(3) _____

(2) Mr. Scott

(4) _____

Date of Interview Apr 14, 1999

Type: ☐ Telephonic ☒ Personal (copy is given to ☐ applicant ☒ applicant's representative).

Exhibit shown or demonstration conducted: ☐ Yes ☒ No. If yes, brief description:

Agreement ☒ was reached. ☐ was not reached.

Claim(s) discussed: None

Identification of prior art discussed:
None

Description of the general nature of what was agreed to if an agreement was reached, or any other comments:
Cancellation of the claims 1-4, 9-12, 17-19, 21-25 and 26 is confirmed.

(A fuller description, if necessary, and a copy of the amendments, if available, which the examiner agreed would render the claims allowable must be attached. Also, where no copy of the amendments which would render the claims allowable is available, a summary thereof must be attached.)

1. ☒ It is not necessary for applicant to provide a separate record of the substance of the interview.

Unless the paragraph above has been checked to indicate to the contrary, A FORMAL WRITTEN RESPONSE TO THE LAST OFFICE ACTION IS NOT WAIVED AND MUST INCLUDE THE SUBSTANCE OF THE INTERVIEW. (See MPEP Section 713.04). If a response to the last Office action has already been filed, APPLICANT IS GIVEN ONE MONTH FROM THIS INTERVIEW DATE TO FILE A STATEMENT OF THE SUBSTANCE OF THE INTERVIEW.

2. ☐ Since the Examiner's interview summary above (including any attachments) reflects a complete response to each of the objections, rejections and requirements that may be present in the last Office action, and since the claims are now allowable, this completed form is considered to fulfill the response requirements of the last Office action. Applicant is not relieved from providing a separate record of the interview unless box 1 above is also checked.

Examiner Note: You must sign and stamp this form unless it is an attachment to a signed Office action.

Notice of Allowability

Application No.
08/892,738

Applicant(s)
Steve Ingistov

Examiner
John T. Kwon

Group Art Unit
3747



All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance and Issue Fee Due or other appropriate communication will be mailed in due course.

- ☒ This communication is responsive to 4/32/99
- ☒ The allowed claim(s) is/are 5-8, 13-16, 20, and 22-24
- ☒ The drawings filed on May 30, 1997 are acceptable.
- ☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
- ☐ received.
- ☐ received in Application No. (Series Code/Serial Number) _____
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- *Certified copies not received: _____
- ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

A SHORTENED STATUTORY PERIOD FOR RESPONSE to comply with the requirements noted below is set to EXPIRE THREE MONTHS FROM THE "DATE MAILED" of this Office action. Failure to timely comply will result in ABANDONMENT of this application. Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

- ☐ Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL APPLICATION, PTO-152, which discloses that the oath or declaration is deficient. A SUBSTITUTE OATH OR DECLARATION IS REQUIRED.
- ☐ Applicant MUST submit NEW FORMAL DRAWINGS
- ☐ because the originally filed drawings were declared by applicant to be informal.
- ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review, PTO-948, attached hereto or to Paper No. _____
- ☐ including changes required by the proposed drawing correction filed on _____, which has been approved by the examiner.
- ☐ including changes required by the attached Examiner's Amendment/Comment.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the reverse side of the drawings. The drawings should be filed as a separate paper with a transmittal letter addressed to the Official Draftsperson.

- ☐ Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Any response to this letter should include, in the upper right hand corner, the APPLICATION NUMBER (SERIES CODE/SERIAL NUMBER). If applicant has received a Notice of Allowance and Issue Fee Due, the ISSUE BATCH NUMBER and DATE of the NOTICE OF ALLOWANCE should also be included.

Attachment(s)

- ☐ Notice of References Cited, PTO-892
- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s). 12
- ☐ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Notice of Informal Patent Application, PTO-152
- ☒ Interview Summary, PTO-413
- ☒ Examiner's Amendment/Comment
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Examiner's Statement of Reasons for Allowance

Art Unit: 3747

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

2. Authorization for this Examiner's Amendment was given in a telephone interview with Mr. Scott on April 14, 1999.

3. The application has been amended as follows:

In the claims:

Claims 1-4, 9-12, 17-19, 21, 25 and 26 have been canceled.

The reasons for allowance

4. The following is an examiner's statement of reasons for allowance: The reasons for the allowance of the claims is that the provision of the specified spacing between the bristle member from the land region of the rotor by an ambient temperature clearance of not less than 0.015 percent of the diameter D when the power plant is inactive in a turbine power plant for controlling cooling air flow is not taught nor rendered obvious over the prior art references.

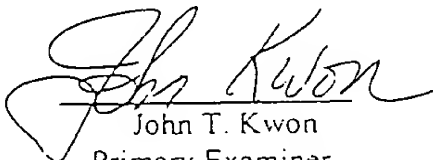
Art Unit: 3747

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Contact Information

Any inquiry concerning this communication should be directed to Examiner Kwon at telephone number (703) 308-1046 and facsimile numbers (703) 305-3588. The examiner can normally be reached on Monday thru Friday from 8:30 AM to 5:00 PM.

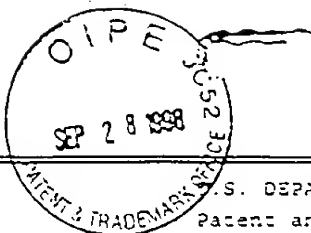
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0861.


John T. Kwon
Primary Examiner
Art Unit 3747

April 14, 1999

Enclosure(s);

See the attachment(s) section of the Office Action Summary.



Sheet 1 of 1

Form PTO-1449
(Likeness)U.S. DEPARTMENT OF COMMERCE
Patent and Trademark Office

Attorney's Office Number

11465-1

Serial Number

02/892,738

INFORMATION DISCLOSURE CITATION

(Use several sheets if necessary)

Applicant

Steve Ingistov

Filing Date

July 15, 1997

Group

3747

U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
AA	5 5 3 8 5 9 0	05-20-97	Bouchard et al.			
AB						
AC	Duplicated					
AD						
AE						
AF						
AG						
AH						
AI						
AJ						
AK						

FOREIGN PATENT DOCUMENTS

	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
						YES	NO
AL							
AM							
AN							
AO							
AP							

OTHER DOCUMENTS (Including Author, Title, Date, Pertinent Pages, Etc.)

AR	International Search Report; PCT/US97/22817, 15 Sept. 1998, 5 pp.
AS	
AT	

EXAMINER

KWON

DATE CONSIDERED

4/14/99

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP §609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

APPENDIX K

DOCKET NO.: ARCO-25,200; DP 50-06-1641C

PATENT

THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Steve Ingistov
Serial No.: 09/288,943
Filed: 04/09/99
Group: 3745
Examiner: Kwon

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to Assistant Commissioner for Patents, Washington, DC 20231 on _____

(Date of Deposit)

F. Lindsey Scott

Title: TURBINE POWER PLANT HAVING MINIMAL-CONTACT BRUSH SEAL AUGMENTED LABYRINTH SEAL

Assistant Commissioner for Patents
Washington, D.C. 20231

Sir:

AMENDMENT

In response to the office action mailed July 18, 2000 wherein applicant's claims 32 through 40 were rejected under 35 USC 135 (b) please consider the following amendments and comments.

In the claims please add new claim 41 as follows.

41. A stationary gas turbine engine for a power plant, comprising:

(a) a multistage axial compressor, the compressor having a rotor, the rotor having a cylindrical land region downstream of a last-stage of the compressor, the land region having an outside diameter D;

(b) a turbine shaft-coupled to the rotor of the compressor;

(c) a combustor fluid coupled between the compressor and the turbine;

(d) a stationary inner barrel member downstream of the compressor, air flowing from the compressor to the combustor passing outside of the inner barrel member, a

chamber within the inner barrel member forming a passage for cooling air from the compressor, the cooling air flowing from the chamber and being mixed with combustion gases upstream of the turbine;

(e) a brush seal for restricting air passage into the chamber from the compressor, the brush seal comprising:

- (i) a ring-shaped holder;
- (ii) a multiplicity of bristle members extending radially inwardly from the holder toward the land region of the rotor, outer extremities of the bristle members being rigidly retained relative to the holder; and
- (iii) means for fastening the holder to the inner barrel member, wherein, when the power plant is inactive, the bristles have an ambient temperature clearance of not less than 0.015 percent of the diameter D from the land region of the rotor.

COMMENTS

The rejection of applicants claims 32 through 40 under 35 USC 135 (b) as not being made prior to one (1) year from the date on which U.S. Patent No. 5,630,590 was granted is respectfully traversed and reconsideration is respectfully requested.

U.S. Patent Application 09/288,943 is a continuation in part of U.S. Serial No. 08/892,738 filed on July 15, 1997 as a continuation of U.S. Serial No. 08/656,564 filed May 31, 1996.

41
Claim ~~7~~ as added above is Claim 1 as originally filed in U.S. Serial No. 08/656,564. This claim along with the other claims in U.S. Serial No. 08/656,564 were indicated allowable in a Notice of Allowance and Issue Fee Due mailed April 15, 1997. Accordingly this claim must be

considered to be allowable as to form. Subsequently, U.S. Serial No. 08/656,564 was abandoned and re-filed as U.S. Serial No. 08/892,738. Claim 1 or a claim claiming substantially the same invention as Claim 1 was present in this case through out its prosecution. An abbreviated copy of the prosecution history is presented below and attached,

Appendix A - Original Claims filed in U.S. Serial No. 08/656,564 May 31, 1996.

Appendix B - The Notice of Allowance issued in U.S. Serial No. 08/656,564 indicating all claims allowable.

Appendix C - A Preliminary Amendment filed in U.S. Serial No. 08/892,738.

Appendix D - A second Preliminary Amendment filed in U.S. Serial No. 08/892,738.

Appendix E - A third Preliminary Amendment filed in U.S. Serial No. 08/892,738.

Appendix F - An Office Action issued June 4, 1998 in U.S. Serial No. 08/892,738.

Appendix G - An Responsive Amendment to the June 4, 1998 Office Action filed January 11, 1999.

Appendix H - An Office Action in U.S. Serial No. 08/892,738 issued January 21, 1999 and February 16, 1999.

Appendix I - A Responsive Amendment to the Office Action issued January 21, 1999 and February 16, 1999 which was filed March 30, 1999.

Appendix J - A Notice of Allowance of U.S. Serial No. 08/892,738.

It will be noted that throughout the entire prosecution of this case Claim 1 or a slightly amended version thereof which is substantially equivalent to Claim 1 has been present in the case until cancellation of Claim 1 in U.S. Serial No. 08/892,738. The claims cancelled in U.S. Serial No. 08/892,738 did not include the features related to the admission of cooling air in addition to that passing the brush seal into the barrel of the turbine engine. These cancelled Claims were of course included in U.S. Serial No. 09/288,943 filed April 9, 1999, a continuation of U.S. Serial No. 08/656,564, as filed. U.S. Serial No. 08/288,943 is of course, entitled to the filing date of U.S. Serial No. 08/656,564 which included Claim 1. All claims except those copied from U.S. Patent 5,630,590 were canceled in U.S. Serial No. 09/288,943 in an amendment filed April 13, 2000 under the belief, based upon telephone conversations with the Examiner that cancellation of these claims would expedite declaration of the interference since it deleted all Claims except those copied from U.S. Patent 5,630,590. To show support for this proposed count as proposed in applicants' earlier filed Amendment Applicant attached a Claim chart showing supporting disclosure material for the proposed count by reference to Applicant's issued Patent 5,961,279. This amendment was made with the understanding that this would simplify the issues related to form with respect to Claims 21 through 31 and would result in early declaration of the interference.

As discussed with Examiner Kwon repeatedly, Applicant's believe that the invention Claimed in U.S. Patent 5,630,590 was derived from Applicant, that applicant was the first inventor of that invention and that the now patentee in the U.S. Patent 5,630,590 is commercializing this invention extremely profitably while Applicant remains unable to obtain a determination of his rights in the Patent Office.

It is respectfully submitted that in the present application, applicant is entitled to make the claim presently added as new claim 41 and that this claim was pending before the patent office during the time that U.S. Patent 5,630,590 was pending before the Patent Office. The Patent

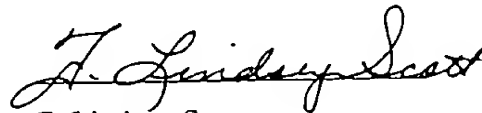
Office could have declared a interference between these two patents at any time during the co-pendency of U.S. Serial Number 08/654,564 filed May 31, 1996 and indicated allowable April 15, 1997 and U.S. Serial No. 08/625,427 filed March 26, 1996 (Now U.S. Patent 5,630,590) under 35 CFR 1.601 (n) and 37 CFR 1.609 (MPEP 2303 last paragraph) or 37 CFR 1.605. It is believed clear that with the material supplied by applicant's earlier amendment filed in U.S. Serial No. 08/288,943 and this demonstration that a claim for substantially the same matter as claimed in U.S. Patent 5,630,590 was pending before the Patent Office prior to the expiration of the one year period after the issuance of U.S. Patent 5,630,590. If necessary applicant can prepare a claim chart showing support for the proposed count based upon Claim 1 but it is considered that it is self-evident from a review of claim 1 that applicant fully supports and has claimed since May 31, 1996 substantially the same invention as claimed in U.S. Patent 5,630,590. Since it appears that there is no doubt that this claim has been pending on behalf of applicants since May 31, 1996 in substantially the same form it appears clear that there is no reason why an interference should not be declared between application 09/288,943 and U.S. Patent 5,630,590. Applicant respectfully requests a prompt and favorable resolution in this matter.

Applicants consider an "intercomponent gap" and a gap of 0.015 percent of the diameter "D" to be of no patentable significance and substantially equivalent especially since the '590 Patent claim 1 refers to an intercomponent gap between a first and a second component and requires that the brush seal impedes the leakage of air through the intercomponent gap. The 0.015 percent gap is between the inner ends of the brush seal and the inner component. The '590 claim 1 does not define this gap. Similarly any distinction between a "refurbished gas turbine engine" and stationary gas "turbine engine" is believed to be of no significance in view of the discussion in applicant's specification at col 5 line 66 - col 6 line 8 which discusses addition of a brush seal to an existing machine (refurbished) or to a "fresh" installation.

Since it is believed that an interference is proper between this patent and this application it is respectfully requested that this interference be declared promptly so that applicant can establish applicant's rights with respect to this invention. Attention is respectfully directed to the last paragraph of MPEP 2307 and 37CFR 1.607 and it is noted that this application has now been pending since April 9, 1999 notwithstanding Applicant's repeated requests for prompt handling.

Since it is believed that an interference is proper between this patent and this application it is respectfully requested that this interference be declared promptly so that applicant can establish applicant's rights with respect to this invention.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "F. Lindsey Scott". The signature is fluid and cursive, with the first name "F." and last name "Scott" being clearly legible.

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APPENDIX L

CLAIM CHART
U.S. PATENT 5,630,590 / USSN 09/288,943

USP 5,630,590	USSN 09/288,943 (USP 5,961,279)
<p>1. A refurbished gas turbine engine component having at least one knife edge seal for inhibiting air leakage through an intercomponent gap between the component and a second component, the refurbished component characterized by:</p> <p style="padding-left: 40px;">a brush seal mounted on the refurbished component in tandem with the knife edge seal, the bristles of the brush seal extending toward the second component for impeding the leakage of air through the intercomponent gap.</p>	<p>FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-27 Col. 5, line 8 - Col. 6, line 8</p>
<p>2. The refurbished component of claim 1 characterized in that the component comprises two component segments, the brush seal is also segmented and the brush seal segments are mounted in a circumferentially extending groove so that the seal is installable and removable by separating the component segments and sliding the brush seal segments circumferentially in the groove.</p>	<p>FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-37 Col. 5, line 8 - Col. 6, line 8 Col. 5, line 19-26 Col. 6, line 6-7</p>
USP 5,630,590	USSN 09/288,943 (USP 5,961,279)
<p>3. A method of improving the air sealing effectiveness between a rotating component and a nonrotating component in a turbine engine, the rotating and nonrotating components being separated by a gap with knife edge seals extending across the gap to inhibit leakage of air therethrough, the method characterized by:</p>	<p>FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-27 Col. 5, line 8 - Col. 6, line 8</p>

<p>providing a brush seal; reconfiguring the nonrotating component to provide means for receiving and retaining the brush seal in tandem with the knife edge seals; and installing the brush seal so that the seal bristles extend toward the rotating component to impede the flow of air through the gap, the brush seal being retained by the receiving and retaining means.</p>	
<p>4. The method of claim 3 wherein the nonrotating component is hollow and substantially cylindrical and has a wall thickness and a face, the method characterized in that the step of reconfiguring the nonrotating component includes: creating a capture slot in the face of the nonrotating component for radially retaining the brush seal; and attaching a retainer to the nonrotating component so that the retainer cooperates with the face to axially trap the brush seal.</p>	<p>FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-27 Col. 5, line 8 - Col. 6, line 8 Col. 4, lines 6-27 Col. 5, line 19-26 Col. 5, line 66 - Col. 7, line 8</p>
<p>5. The method of claim 4 characterized in that the reconfiguring step includes reducing the wall thickness by a predefined amount in the vicinity of the face to form a seal seat and accommodate the radial dimension of the brush seal.</p>	<p>FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-27 Col. 5, line 8 - Col. 6, line 8 Col. 5, line 19-26 FIG. 4 & FIG. 5 Col. 5, line 8-26</p>
<p>USP 5,630,590</p>	<p>USSN 09/288,943 (USP 5,961,279)</p>
<p>6. The method of claim 4 characterized in that the reconfiguring step regulates the axial length of the nonrotating component.</p>	<p>FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-27 Col. 5, line 8 - Col. 6, line 8 Col. 5, line 19-26 FIG. 4 & FIG. 5 re dimension C before and after brush seal installation.</p>

7. The method of claim 3 wherein the brush seal is a multilayered brush seal.	Obvious variation
8. The method of claim 3 wherein the nonrotating component comprises upper and lower component segments each component segment subtending approximately 180 degrees of arc, the retainer also comprises upper and lower retainer segments, each retainer segment subtending approximately 180 degrees of arc, and the brush seal comprises an upper brush seal segment subtending approximately 180 degrees of arc and one or more lower brush seal segments, the lower brush seal segments collectively subtending approximately 180 degrees of arc.	FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-38 Col. 5, line 8 - Col. 6, line 8
USP 5,630,590	USSN 09/288,943 (USP 5,961,279)
9. A method of improving the air sealing effectiveness between a rotating component and a nonrotating component in a turbine engine, the nonrotating component being hollow and substantially cylindrical and having a wall thickness and a face, the rotating and nonrotating components being separated by a gap with knife edge seals extending across the gap to inhibit leakage of air therethrough, the method characterized by: reconfiguring the nonrotating component by reducing its axial length by a predetermined amount and reducing its wall thickness in the vicinity of the face by a predefined amount whereby a seal seat is formed; creating an axially and circumferentially extending capture slot in the face of the nonrotating component; attaching a retainer to the face so that the retainer cooperates with the face and the seal seat to define a circumferentially extending groove; and	FIG. 1 & FIG. 2 Col. 1, line 66 - Col. 2, line 24 Col. 4, line 6-27 Col. 5, line 8 - Col. 6, line 8 Col. 5, line 19-26 FIG. 4 & FIG. 5 re dimension C before and after brush seal installation. Col. 2, line 15-20 Col. 5, line 19-26

<p>installing a brush seal in the groove so that the bristles of the seal extend toward the rotating component to impede the flow of air through the gap;</p>	
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<p>the brush seal being radially retained by the capture slot and the seal seat and axially retained by the retaining ring and the face.</p>	
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